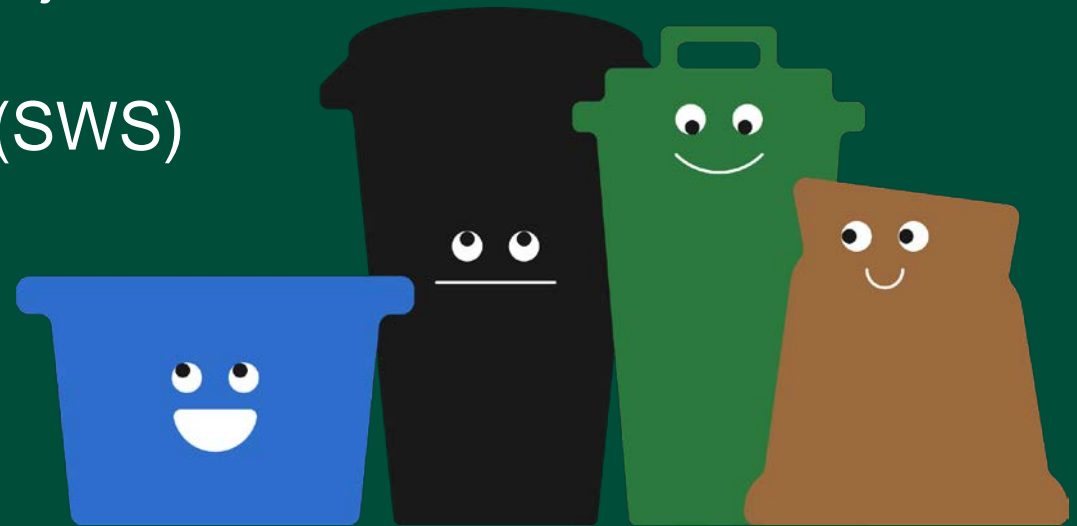


# Greater Sudbury Sustainable Waste Strategy

October 22, 2024

# Purpose

1. Need for a Long Term Plan and Project Overview
2. Final Sustainable Waste Strategy (SWS) and Anticipated Impacts
3. Next Steps



# Need for Long Term Plan & Project Overview



# Greater Sudbury's Sustainable Waste Strategy

## Why develop the Sustainable Waste Strategy?

The Sustainable Waste Strategy (SWS) is a 10-year plan for the City of Greater Sudbury's (the City's) waste management system that minimizes the quantity of waste requiring handling and disposal by maximizing waste diversion opportunities.

The SWS provides a plan for our community to continue to take progressive actions to responsibly manage our waste and preserve our assets and shared environment for future generations.

There are **18** recommended actions that together will reduce waste, extend landfill life and improve the performance of the City's current system over the next ten years.

In the short term, the SWS actions focus on building desired behaviours now in a cost-efficient way.

**These smaller, lower cost changes will maximize existing diversion programs and delay the need to implement higher cost actions for new disposal capacity later.**

## Long-term planning is important because:



About 90,000 tonnes of garbage from homes, schools, businesses and industries goes into the City's landfills each year.

If that trend continues, the **landfills will be full in about 25 years.**



**A large amount of organic waste is still being landfilled** and producing methane gas – a potent greenhouse gas.

We need to divert more organic waste to support the City's Community Energy and Emissions Plan and its goals of achieving net-zero emissions and **90% waste diversion by 2050.**



It can take **up to 10 years** to secure a new disposal option.

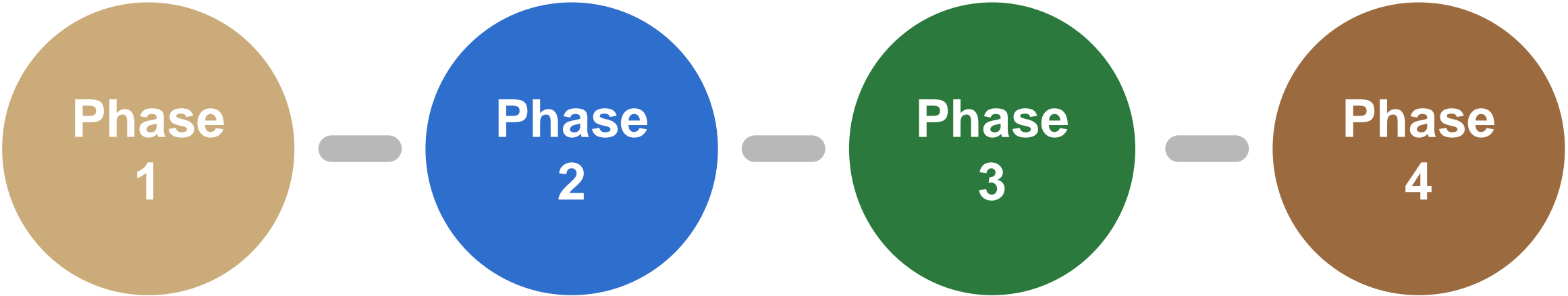
The process involves many steps including confirming the preferred option, securing a site, getting the necessary approvals and consultation, designing and constructing the facility.



Other disposal options like a new landfill(s) or incinerator are much more expensive compared to the current way to dispose of the City's garbage.

If diversion is not increased, **funding will need to be put aside for alternative disposal by 2035.**

# Project Overview



### **Assess Current State**

Understand the current system and the context in which it operates

**Mid 2022 - Early 2023**

### **Envision Future State**

Establish guiding principles and vision for the future state

**Early 2023 - Mid 2023**

### **Determine How**

Identify options to achieve goals and evaluate future options

**Mid 2023 - Early 2024**

### **Develop Sustainable Waste Strategy**

Consolidate and summarize findings into a 10-year plan (2025-2035)

**Early 2024 - Late 2024**

# Internal Consultation



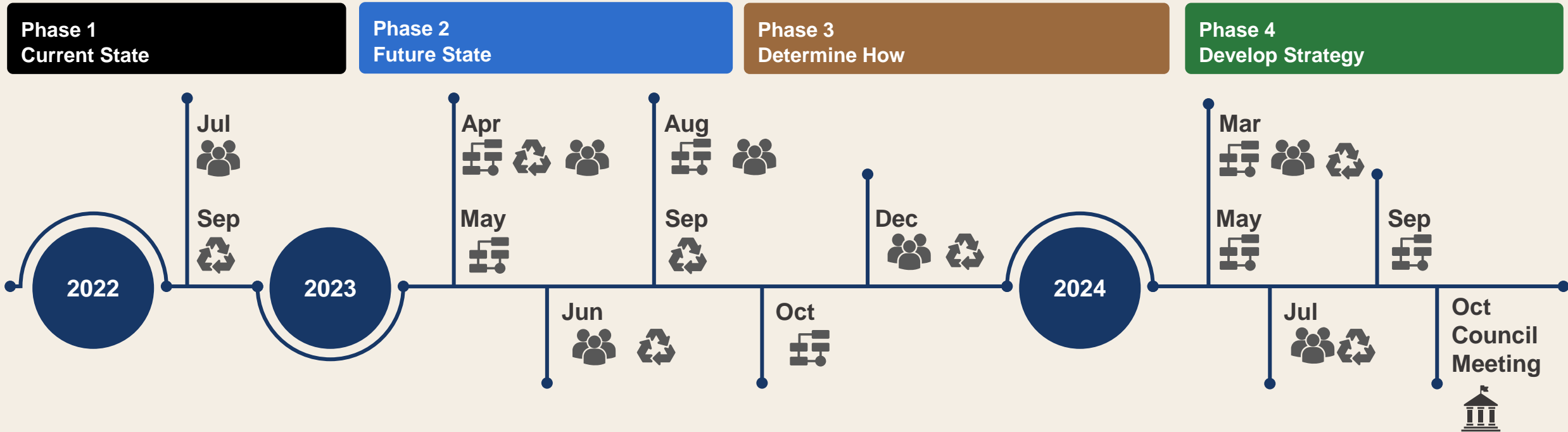
**Technical Advisory Committee** includes key City staff representing Environmental Services, Environmental Planning Initiatives, 311 and Communications and Community Engagement. Together the group provides perspectives related to operational matters, programs, projects and policies.



**Solid Waste Advisory Panel** acts as a public liaison committee on current solid waste management issues and includes a minimum of two Council members and six to eight citizens.



**Operations Committee** includes Council members who review information and proposals and make recommendations to Council on matters pertaining to the Growth and Infrastructure Department (which Environmental Services is part of).



# Public Engagement

## Phase 1 Current State

Understand the current system and context in which it operates

Mid 2022 - Early 2023

## Phase 2 Future State

Establish guiding principals and vision for the future state

Early 2023 - Mid 2023

## Phase 3 Determine How

Identify options to achieve goals and evaluate future options

Mid 2023 - Early 2024

## Phase 4 Develop Strategy

Consolidate and summarize findings into a 10-year plan (2025-2035)

Early 2024 - Late 2024

## Public Consultation During Each Project Phase



3 Virtual Community Workshops with 10 attendants



Public Survey: 280 respondents



5 Community drop-in events with 170 participants



Public Survey: 369 respondents



Public Survey: 187 respondents



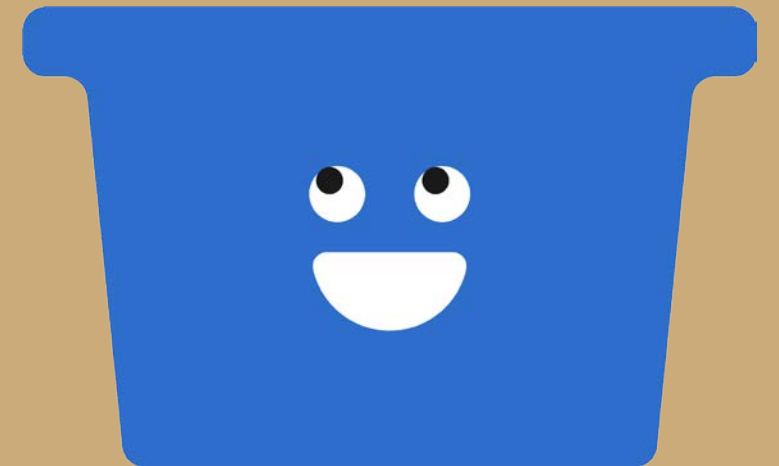
4 Community workshops with 20 participants



Public Survey: 1,537 respondents

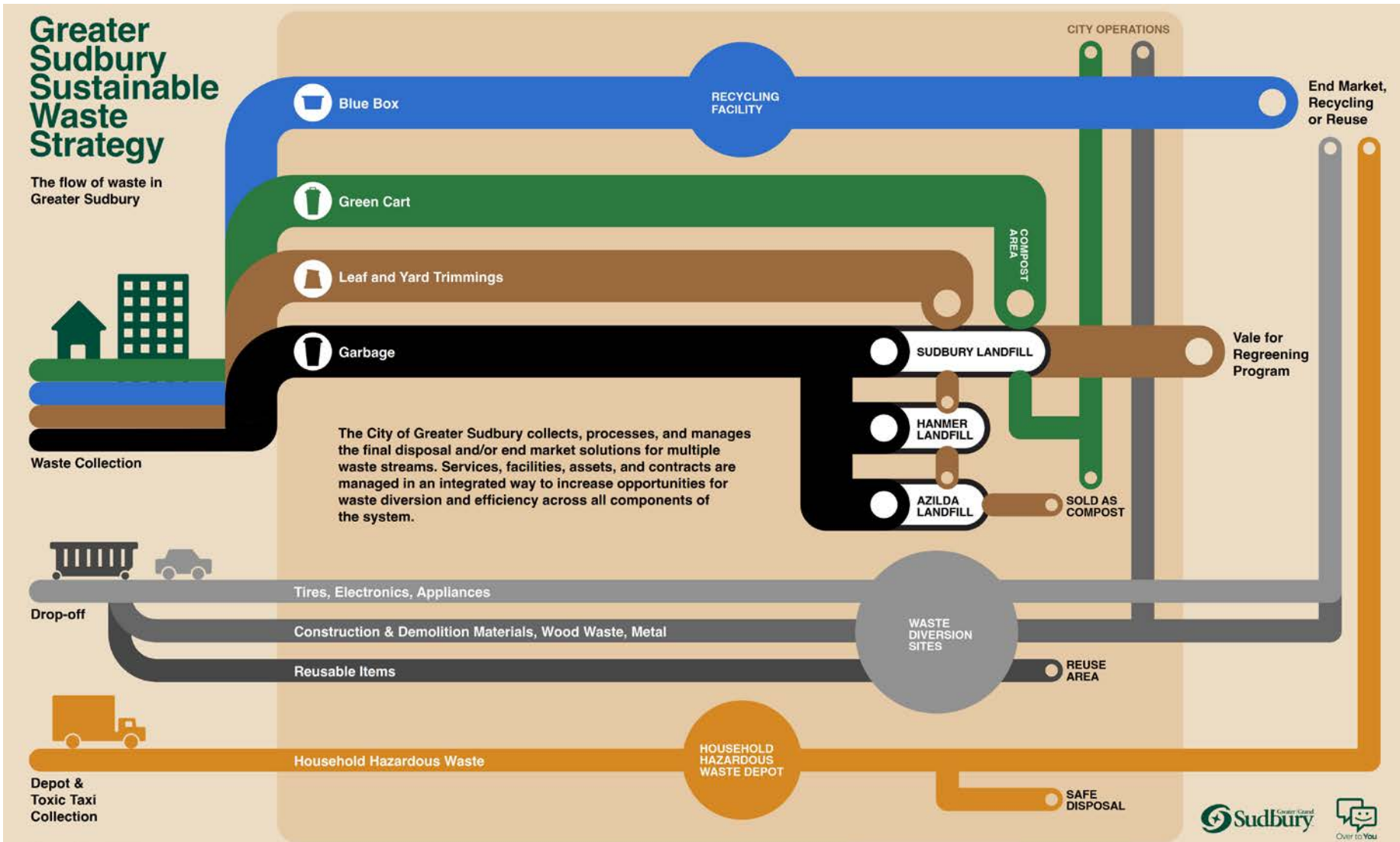


# Sustainable Waste Strategy & Anticipated Impacts





# Phase 1: How does the City manage waste today?



This flow chart shows what happens to the waste after it is left at the roadside, depot and landfill and diversion site.



# Phase 1: Who does the City provide waste collection services to?



63,200



low and high density properties on roadside collection program

10,750



units in high density properties with bin/cart collection

175



non-residential customers on roadside collection (e.g., small businesses, churches)

87



municipal facilities (e.g., arenas, libraries)

Waste Category	Residential Roadside	High Density	Non-Residential	Municipal Facilities
Garbage	Yes	Yes	Yes, limited roadside only for a fee	No
Blue Box Recycling	Yes	Yes	Yes, limited roadside only for a fee	Yes
Green Cart Organics	Yes	No	Yes, limited roadside only for a fee	Yes
Leaf and Yard Trimmings	Yes	No	No	No
Furniture, Appliances and Electronics	Yes, low density only	No	No	No
Household Hazardous Waste	Yes	Yes	No	No

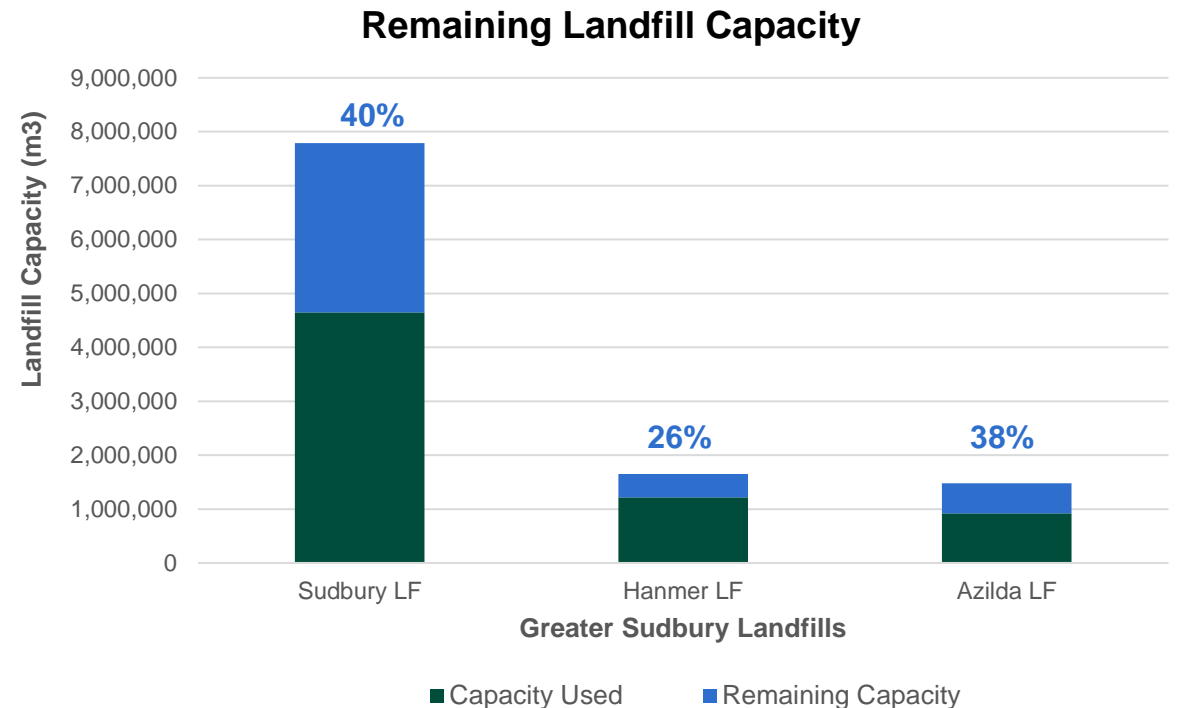
# Phase 1: Statistics About the Current Waste Management System

The City has excellent programs to support waste diversion including:

- Household Hazardous Waste Depot and roadside Toxic Taxi Collection
- Diversion areas at the landfill sites for materials like appliances, electronics, leaf and yard trimmings and construction waste
- Reuse opportunities at four sites to donate and/or purchase gently used items
- Rebate programs for Cloth Diapers and Dog Waste Digesters
- Waste Wise app
- School programs and the Education Centre at the City's Environmental Services administration building (1805 Frobisher Street)



There are four main City sites that take in waste. The Sudbury Landfill and Waste Diversion Site is the City's largest site that receives the most amount of City-managed waste. The Sudbury Landfill has about 40% of space remaining.

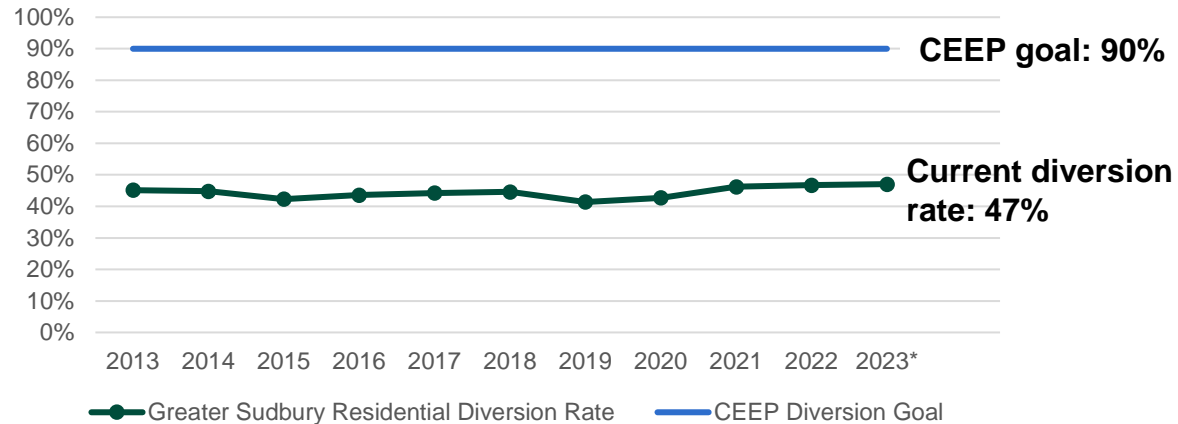


# Phase 1: Current Waste Management System Trends

Over the last 10 years, the amount of residential waste that has been diverted from landfill has been relatively stagnant averaging at 44% with the exception of an increase in 2021 which corresponds with the City's adoption of garbage collection every other week). The City's CEEP set a goal of achieving **90% diversion by 2050**.

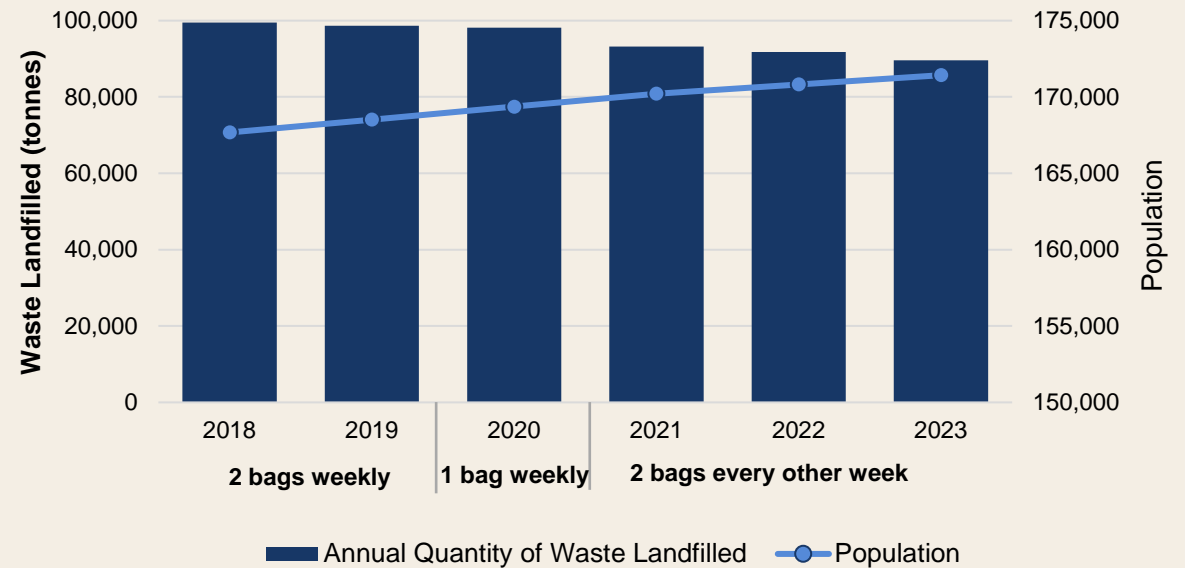


## Residential Waste Diversion Rate



\*2023 results are being verified.

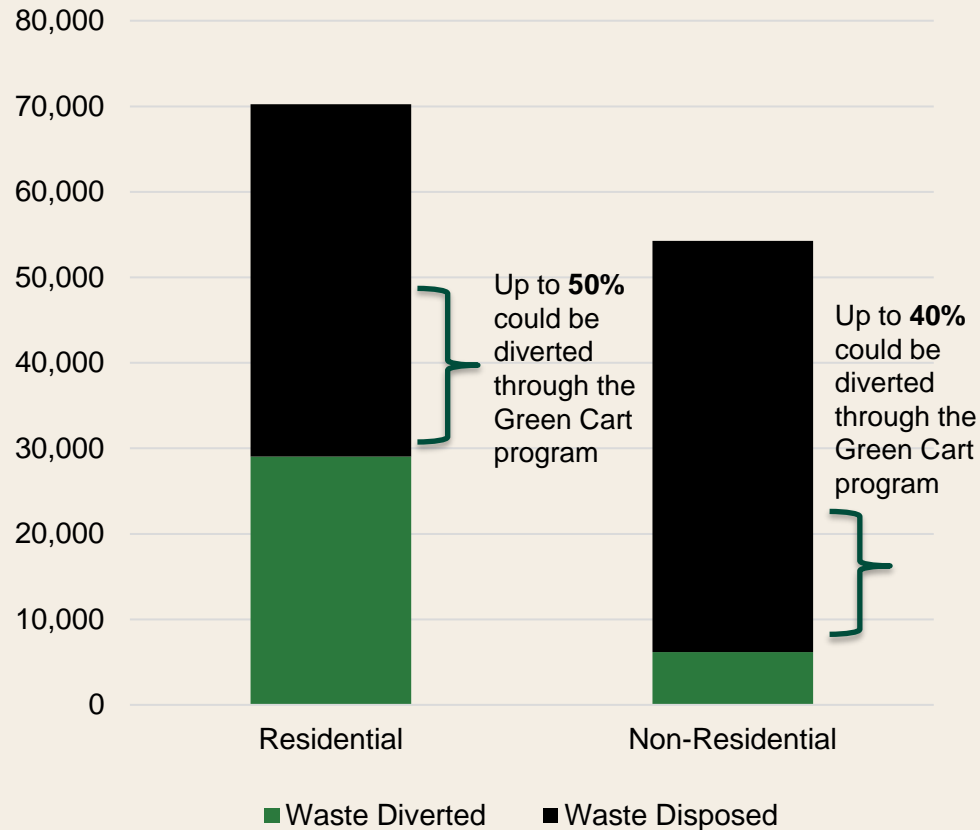
## Residential and Non-Residential Waste Landfilled (2018 to 2023)



Although population has increased, the amount of garbage landfilled has decreased over the last six years as a result of changes to garbage bag limits and collection frequency.



# Phase 1: How Much Waste Does the City Manage?



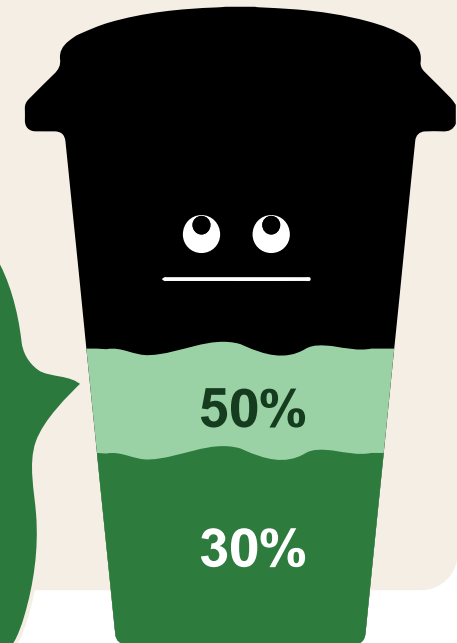
The City managed approximately 125,000 tonnes of waste in 2023 through programs like Blue Box, Green Cart, yard trimmings, garbage, etc. The waste comes from the following sources:

- **44%** comes from non-residential sources like small businesses, schools, industries and organizations;
- **66%** comes from residential sources including:
  - **34%** is residential waste collected roadside; and
  - **22%** is residential waste that is brought to the landfill and waste diversion sites.

In 2023, the residential sector diverted about 47% of the waste from landfill while the non-residential sector diverted about 20%.

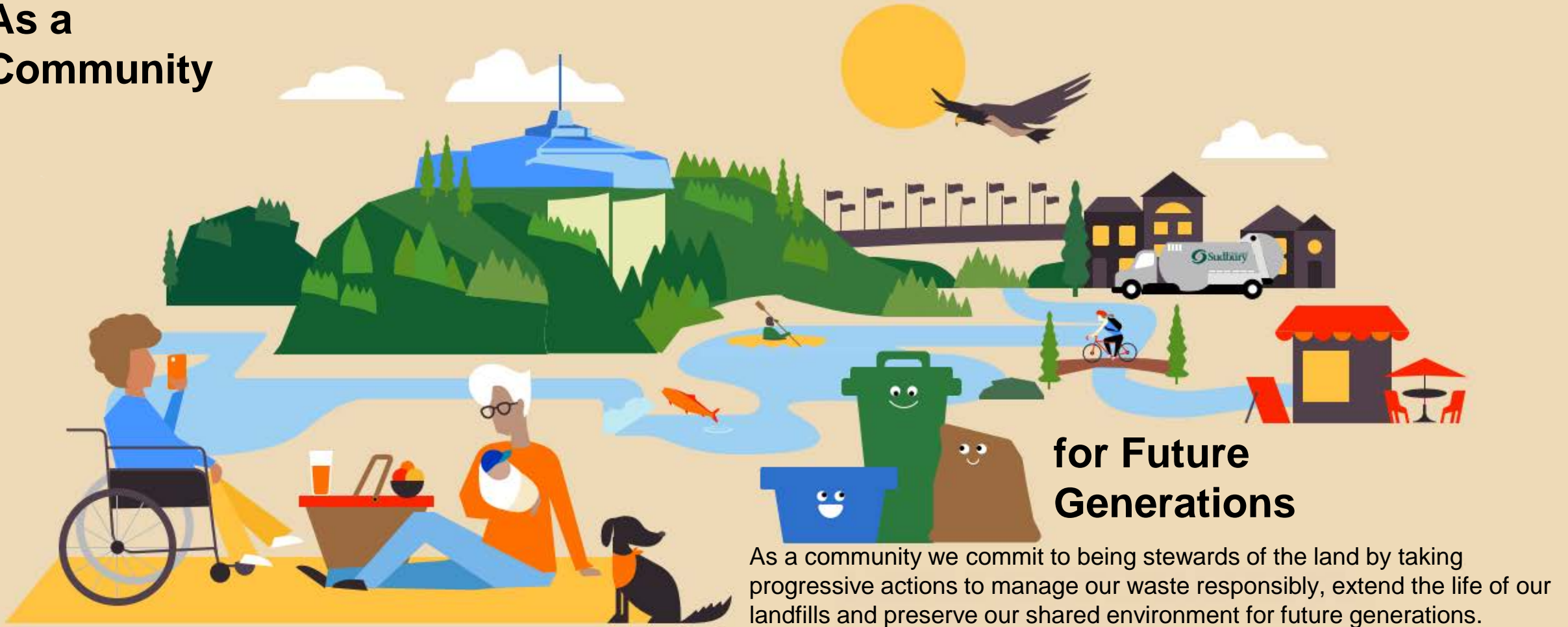
Between **30** and **50%** of the residential garbage disposed contains organics that could have been diverted through the Green Cart program.

The quantity of organics in the non-residential garbage stream varies based on the customer type, but studies have estimated between **15** and **40%** organics content.



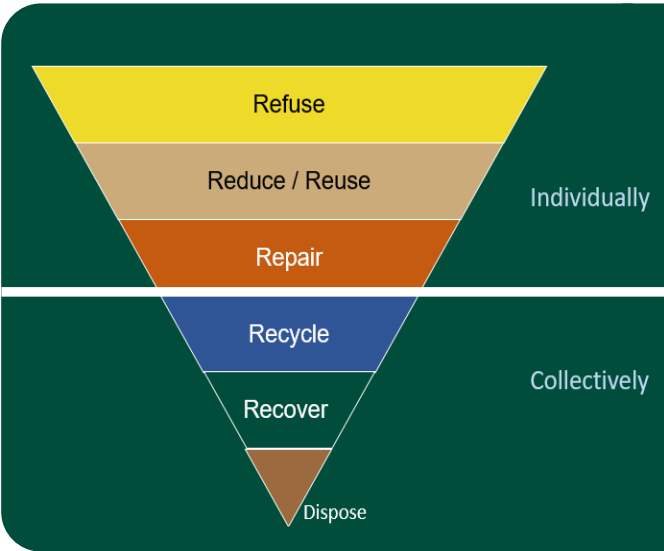
# Phase 2: Sustainable Waste Strategy's Vision

**As a  
Community**





# Phase 2: Foundational Elements – Waste Hierarchy and Guiding Principles



A **City-specific Waste Hierarchy** was created that describes the City's priorities for how materials are treated. The Hierarchy is split into two sections: elements above the white line indicate efforts that can be made by **individuals** and elements below the white line indicate efforts that can be done **collectively** with individuals and the City. The actions in this Strategy mainly focus on collective efforts.

1. **Refuse:** Make choices that prevent the generation of waste.
2. **Reduce/Reuse:** Lessen the generation of waste by reducing and reusing products or materials.
3. **Repair:** Make materials last longer, which could include fixing pieces, replacing parts, remanufacturing, refurbishing.
4. **Recycle:** Collect, sort, and sell materials to secondary markets to be incorporated into new products or packaging.
5. **Recover:** Collect, treat, and use materials from nature, such as using leaf and yard trimmings for regenerative purposes and recovering energy from landfill gas.
6. **Dispose:** Landfill or incinerate materials without opportunity for them to be repurposed.

**Guiding Principles** were created to help with making decisions about which recommendations to put forward in the SWS. These are:

1. Apply the waste hierarchy.
2. Prolong the life of the City's landfills.
3. Improve and/or augment programs and agreements that benefit the City financially and evaluate their contribution.
4. Promote responsible behaviour through the provision of promotion and education, and by making diversion programs accessible, convenient and appropriate for a northern Ontario community and Greater Sudbury's cultural diversity.
5. Advance Individual Producer Responsibility (IPR) programs and make appropriate decisions that reflect the evolution of IPR programs.
6. Where viable markets or technologies are available, research the potential for diversion to balance environmental and financial priorities.



# Phase 3: Summary of Recommendations

The SWS recommends 18 actions which are aligned with the waste hierarchy and are anticipated to have the following outcomes:

## Reduce/ Reuse/ Repair



1 recommended action involves collaborating to create local circular economy opportunities and markets.

- ✓ Minimize the total quantity of waste the City handles.
- ✓ Researches the viability of local opportunities for reuse and repair.
- ✓ Move towards achieving the City's climate change goals by reducing and reusing.

## Recycle



9 recommended actions work towards increased diversion for both residential and non-residential customers.

- ✓ Reduce the quantity of garbage disposed in the landfill.
- ✓ Delay the need for new disposal capacity.
- ✓ Increase customer service satisfaction.
- ✓ Move towards achieving the City's climate change goals.



1. Recover waste management costs.
2. Implement a clear garbage bag program.
3. Enhance roadside collection.
4. Review the bulky waste collection program.
5. Develop the preferred future collection system.
6. Enhance existing diversion program at municipal facilities.
7. Conduct waste composition studies.
8. Enhance customer service delivery through technology.
9. Develop diversion tool kits for the high density residential and non-residential sectors.






# Phase 3: Summary of Recommendations

The SWS recommends 18 actions which are aligned with the waste hierarchy and are anticipated to have the following outcomes:

## Recover

4 recommended actions work towards improving and enhancing both household organics and leaf and yard trimming programs.


- ✓ Reduce food waste in landfills.
- ✓ Delay the need for new disposal capacity.
- ✓ Create compost.
- ✓ Move towards achieving the City's climate change goals by increasing diversion and reducing emissions.

1. Review the leaf and yard trimming collection program.
2. Secure organic waste processing and funding.
3. Increase organics collection from non-residential sector.
4. Increase organics collection from apartment buildings. 

## Dispose

4 recommended actions provide opportunities to improve landfill equipment and operations and enhance public space waste management.

- ✓ Increase efficiencies.
- ✓ Reduce litter and illegal dumping of waste.
- ✓ Conserve landfill space.
- ✓ Increase customer service satisfaction.
- ✓ Move towards achieving the City's climate change goals by reducing emissions.

1. Pilot separate dog waste collection.
2. Develop a litter and illegal dumping strategy.
3. Enhance landfill operations.
4. Reduce greenhouse gas emissions at landfills. 

# Phase 4: What will the City consider when implementing the SWS actions?

Ten of the recommended actions are community-based actions that make changes to how waste is managed in the home, public spaces, schools, businesses, organizations and industries. The remainder of the options relate to changes in the City's operating facilities.



# Phase 4: When will the 18 recommended actions be implemented?

Planning, implementation and monitoring of the 18 recommended SWS actions will take place over the next ten years.

In 2028, the City's collection contract will expire. Many actions are being taken before then to be prepared for the next collection contract which will likely cover a 10-year period.

There is a potential to expand the Green Cart program earlier to apartment buildings, businesses, industries, etc. if the City is able to find a new approach to processing Green Cart organics earlier.

A SWS review and update is recommended in five years (2030).

Symbol	Activity
P	Planning
I	Implementation
P&I	Planning & Implementation
M	Monitor and Maintain

Implementation Timeline of SWS Actions	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
<b>Reduce</b>											
Create local circular economy opportunities		P	I	M							
<b>Recycle</b>											
Recovery of waste management costs	P&I	M			I	M					
Clear garbage bag program	P&I	M									
Enhance roadside collection		P	I	M							
Bulky waste collection program review	P	I	M								
Preferred future collection system	P	I	M								
Enhance diversion at municipal facilities		P&I	M								
Conduct waste composition studies	P&I	M									
Enhance customer service delivery through technology			P	I	M						
Create diversion tool kits for apartments, condos and the non-residential sector		P&I	M								
<b>Recover</b>											
Review leaf and yard trimming collection program	P	I	M								
Organic waste processing and funding	P		I	M							
Increase organics collection from non-residential sector				P		I	M				
Increase organics collection from apartment buildings				P		I	M				
<b>Dispose</b>											
Pilot separate dog waste collection				P	I	M					
Litter and illegal dumping strategy			P&I	M							
Landfill operations enhancements:											
Compaction equipment	P	I	M								
Scale software		P	I	M							
Traffic flow			P&I	I	M						
Reduce greenhouse gas emissions at landfills				P		I	M				

# Phase 4: What is the impact of the actions?

## By implementing the SWS actions:

- Each individual resident is estimated to reduce the amount of garbage they create by **16%**.
- Collectively, the total amount of residential and non-residential waste landfilled is estimated to be reduced by **22%**.

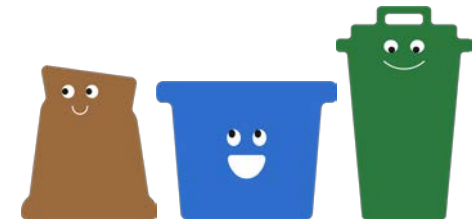
By increasing participation in the Green Cart program (through the SWS actions) the City can support the CEEP goals and reduce the quantity of organics landfilled.

**This is estimated to reduce greenhouse gasses by 12%.**

Many of the options are studies and pilot projects (noted below) that upon completion, will provide better information to the City to advance decision-making.

It is anticipated that **additional benefits will be achieved** through the implementation of the study and pilot recommended actions.

- Recovery of waste management costs
- Bulky collection program service review
- Preferred future collection system
- Conduct waste quantity and composition studies
- Review leaf and yard trimming collection program
- Organic waste processing and funding
- Pilot separate dog waste collection
- Litter and illegal dumping strategy
- Reduce greenhouse gas emissions at landfills



# Phase 4: What are the potential impacts from the recommendations?

**The SWS actions are estimated to cost \$2 million over the 10-year planning period.**

The City of Greater Sudbury has implemented proven practices to optimize and prolong the lifespan of its current landfills, and to make progress towards climate change goals.

Costs for each option were estimated and ranked as low, medium or high. The SWS recommends continuing to bring in low-cost policy changes and best practices that modestly increase the waste diversion rate, support progress to meet CEEP goals and enable the City to continue to use its current landfill assets to the extent possible.

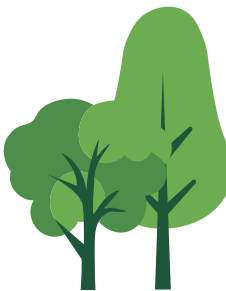


The potential impacts to waste diversion and greenhouse gas emission reductions were estimated and ranked as low, medium and high. The clear garbage bag program (for residential and non-residential customers) and the implementation and expansion of the Green Cart program (to apartment and condominium buildings and to the non-residential sector) are expected to achieve the highest impacts.

The recommended actions impact different customer types including low-density residential (LDR), high-density residential buildings like apartments and condos (HDR), non-residential (NR) and/or municipal facilities (MF).

The City of Greater Sudbury already provides waste diversion programs like Green Cart and Blue Box which create the biggest impact to metrics like reducing GHG emissions and the amount of waste disposed in landfills. New programs targeting specific waste streams (e.g., batteries, clothing) or enhancements to existing programs will create incremental improvements to those already achieved by the City.

Potential Impact	Cost Range	Diversion Impact	Greenhouse Gas Impact (as landfill emissions in CO <sub>2</sub> e)
Low	\$50,000 or less	1% or less	Little to no reductions
Medium	\$50,000 to \$300,000	2-4%	Some reductions
High	More than \$300,000	More than 4%	Large reductions
Not applicable	Little to no impact or difficult to measure		
TBD	These recommendations are studies and pilot projects. The potential impacts will be determined following the completion of the studies and pilot projects.		



# Phase 4: What are the potential impacts from the recommendations?

SWS Actions	Targeted Sector	Cost Range	Diversion Impact	GHG Reduction Impact
<b>Reduce</b>				
Create local circular economy opportunities	LDR, HDR, NR	Low	Low	Low
<b>Recycle</b>				
Recovery of waste management costs	LDR, HDR, NR	Low	TBD	TBD
<b>Clear garbage bag program</b>	<b>LDR, HDR, NR</b>	<b>Medium</b>	<b>High</b>	<b>High</b>
Enhance roadside collection	LDR, HDR	Medium	Low	Low
Bulky waste collection program review	SF, HDR	Low	TBD	TBD
Preferred future collection system	LDR, HDR, NR	Medium	TBD	TBD
Enhance existing diversion program at municipal facilities	MF	High	Low	Low
Conduct waste composition studies	LDR, HDR, NR, MF	Low	Not applicable	Not applicable
Enhance customer service delivery through technology	LDR, HDR, NR	Medium	Low	Low
Create diversion tool kits for apartments, condos and the non-residential sector	HDR	Low	Low	Low
<b>Recover</b>				
Review leaf and yard trimming collection program	SF	Low	TBD	TBD
Organic waste processing and funding	LDR, HDR, NR, MF	Medium	Not applicable	Not applicable
<b>Increase organics collection from non-residential sector</b>	<b>NR</b>	<b>Low</b>	<b>Medium</b>	<b>Medium</b>
<b>Increase organics collection from apartment buildings</b>	<b>HDR</b>	<b>High</b>	<b>Medium</b>	<b>Medium</b>
<b>Dispose</b>				
Pilot separate dog waste collection	LDR, HDR	Medium	Not applicable	Low
Litter and illegal dumping strategy	LDR, HDR, NR	Medium	Not applicable	Low
Landfill operations enhancements	LDR, HDR, NR, MF	Medium	Not applicable	TBD
Pilot biosystem at landfill to reduce greenhouse gas emissions	LDR, HDR, NR, MF	Medium	Not applicable	TBD

## September 9, 2024 – Operations Committee Resolution

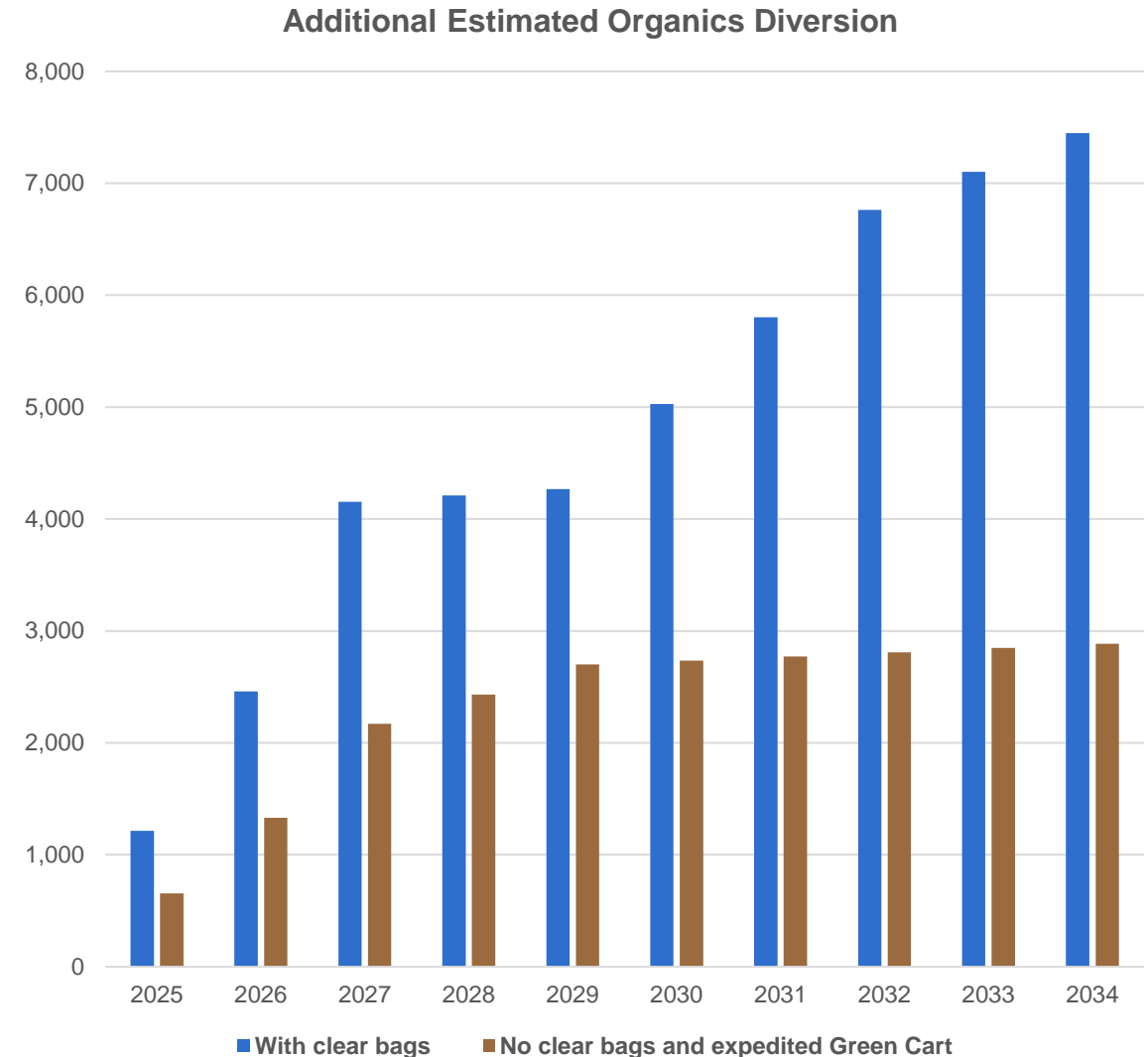
*“THEREFORE IT BE RESOLVED that staff are directed to provide additional information in the presentation of the Master Plan to Council on October 22, 2024 regarding means to enforce additional diversion throughout the City of Greater Sudbury to address the lack of adequate and effective diversion within the sectors other than low density, including its own facilities.*

*AND IT BE FURTHER RESOLVED that the report includes enforcement recommendations on how non-residents of the City of Greater Sudbury can be prevented from using City landfills.”*



# Options for Increased Diversion in Non-Low Density Residential Sectors

- Expand the Green Cart program to more **high density residential and non-residential** customers sooner than proposed in the SWS. To do this, the following financial investments at the time of implementation:
  - Make a one-time expenditure of \$180,000 for staffing, promotion and education over a 12-18 months implementation timeline; and
  - Annual operating cost to collect from high density residential properties of \$300,000.
- Accelerate **municipal facilities** diversion program action sooner than proposed in the SWS will require the following financial investments:
  - Annual capital investments to purchase containers (assumed to be \$50,000 per year); and
  - Annual operating costs (estimated at \$10,000) to monitor and maintain the program.





# 2025 Sustainable Waste Strategy Cost Comparison

## Recommended Actions for 2025

Estimated cost to plan and implement the Actions recommended for 2025 as per suggested timeline is **\$505,000**.

- Of which, approximately \$70,000 (or 14% of the total 2025 costs) is a one-time cost to plan and implement the clear garbage bag program.

## Modified Actions in 2025

Estimated cost to replace the clear bag program with accelerated high density residential and non-residential organics and the municipal facility enhancements in 2025 is **\$975,000**.



# Preventing Non-Residents Accessing City Landfill Sites

**Current Method:** Provision of a Greater Sudbury address. Reserved right to ask for address verification in instances when the waste or address is suspected to be outside City boundaries.

## **Potential Future Actions for Mandatory Verification:**

1. Option 17 for Landfill Operation Enhancements has been modified to include incorporating landfill access requirements when researching modernized scale software. Cost to be determined after RFP process.
2. Manual address verification - 6 months lead time to implement, one-time advertising investment of approximately \$7,000 to \$10,000 – annual operating cost for staff hours to manage an application process and possible increase in security to manage traffic would be assessed if directed by Council.

## **Considerations:**

- Residential verification: mandatory provision of driver's license, utility bill or property tax invoice/statement;
- Commercial verification: employer letter detailing work site and dates - may involve application process;
- Vehicles that cannot provide the verification will be asked to leave the site;
- Significantly reduces the likelihood that a non-resident accesses the landfill site;
- Will increase landfill access wait times and could cause traffic congestion on public access roads without further investment in traffic management; and
- Anticipated to have a low impact on reducing the total waste landfilled and decreasing greenhouse gases.

# The Need for the SWS Actions

## There is limited disposal capacity in Ontario.

In 2023, the Office of the Auditor General of Ontario reported that there is approximately **10 to 13** years of landfill disposal capacity in Ontario, assuming current levels of waste generation, diversion and waste export to the USA.

## What about other technological solutions?

Other municipalities have used technologies like energy from waste (e.g., incineration) to reduce the volume of waste landfilled and/or using anaerobic digestion to manage more materials in the Green Cart program (e.g., pet waste, litter, diapers and sanitary products). While effective, these technologies have high costs.

For example, the City of Ottawa recently estimated the cost of a new Energy from Waste facility at \$450 to \$500 million and the cost for a new anaerobic digestion facility at \$140 million.

**Delaying the need for a new landfill(s) is a cost-effective approach and was top of mind in developing the SWS.** If the landfills capacity is reached, establishing alternative disposal facilities will increase costs significantly. For example:

- A replacement landfill similar to the Sudbury landfill is estimated to cost **\$100 million**.
- A replacement landfill similar to Hanmer or Azilda is estimated to cost **\$50 million** each.

**\$200 million**  
Replacement of all facilities

**\$100 million**  
Replacement of  
Sudbury landfill

**\$2 million SWS actions**



# Conclusion

1

The City is currently managing its waste at its three landfills and has achieved a relatively consistent diversion rate over the last 10 years. Assuming the City continues its flat line trajectory, landfill capacity will decrease steadily. **Extending the life of the landfills delays the need for new disposal capacity.**

Due to the planning time and capital investments required to secure alternative disposal options, the City will need to start the process long before its disposal capacity is exhausted. The planning and approval process can take up to 10 years.



2

If there is no action or a delay in taking the recommended actions, the City will need to start planning for the implementation and funding of new disposal capacity at the expiry of this plan (2035).

**The opportunity to take action for the future is now.**



3

The SWS' approach is grounded on **proven** waste management practices that are currently available, **aligned** with Greater Sudbury's existing waste management system and are within the City's jurisdictional control.



4

Some of the recommended actions include conducting studies that, once complete, will give better information to the City to advance decision-making.

The City will monitor new technologies and approaches over the next 10 years and consider additional programs as they develop.



# Next Steps

- Council Plan Adoption
- Implement SWS Actions

